

REMARKS

In the March 31, 2010 Office Action, the drawings and specification were objected to and claims 1-4, 6, 7, 10, 11, 14, 17, 20 and 23-28 stand rejected in view of prior art. Claims 2, 4, 17, 20, 24-26 and 28 also were as being indefinite for failing particularly point out and distinctly claim the subject matter that Applicant regards as the invention. No other objections or rejections were made in the Office Action.

Status of Claims and Amendments

In response to the March 31, 2010 Office Action, Applicants have amended the specification and claims 1 and 4 as indicated above. Thus, claims 1-4, 6, 7, 10, 11, 13, 14, 17, 20 and 23-31 are pending, with claims 1-4 being the only independent claims. Reexamination and reconsideration of the pending claims are respectfully requested in view of above amendments and the following comments.

Specification

On pages 2 and 3 of the Office Action, the specification was objected to for informalities. In response, Applicants have amended the specification to correct the informalities as suggested by the Office Action. Applicants believe that the specification is now correct. Accordingly, withdrawal of this objection is respectfully requested.

Claim Rejections - 35 U.S.C. §112

On page 3 of the Office Action, claims 2, 4, 17, 20, 24-26 and 28 were rejected under 35 U.S.C. §112, second paragraph. In response, Applicants have amended claims 2 and 4 to clarify that the second surface portion being configured to remain attached to the first surface portion while a centrifugal force resulting from the rotation of the main plate acts on the first surface portion thereon, and the hollow blades including a blade shape retaining mechanism to prevent the second surface portions from being deformed toward outer peripheral sides of the second surface portions by [[a]] the centrifugal force.

Applicants believe that the claims now comply with 35 U.S.C. §112, second paragraph. Accordingly, withdrawal of this rejection is respectfully requested.

Rejections - 35 U.S.C. § 103

On pages 3-7 of the Office Action, claims 1-4, 7, 11, 14 and 23-28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Japanese Patent Publication No. 64-41697 in view of either U.S. Patent Nos. 3,536,416 (Glucksman) or 6,848,887 (Kim). Claims 6, 10, 17 and 20 are rejected as being unpatentable over the ‘697 publication and either the Glucksman patent or the Kim patent. In response, Applicants have amended independent claims 1-4 as mentioned above.

Specifically, independent claims 1 and 2 now require, *inter alia*, each blade having a leading rotational edge and a trailing rotational edge with the edge portion of the blade extending between the leading and trailing rotational edges of the blade such that an interior surface of the edge portion faces the main plate through the hollow space of the blade along a majority of the hollow space between the leading and trailing rotational edges of the blade. Similarly, independent claims 3 and 4 now require, *inter alia*, each blade having a leading rotational edge and a trailing rotational edge with the edge portion of the blade extending between the leading and trailing rotational edges of the blade such that an interior surface of the edge portion faces the side plate through the hollow space of the blade along a majority of the hollow space between the leading and trailing rotational edges of the blade. Clearly these arrangements are **not** disclosed or suggested by the ‘697 publication, the Glucksman patent and/or the Kim patent, singularly or in combination.

More specifically, the so-called edge portion (near 18) and end surface (near 21) in the ‘697 publication extend vertically along the leading/trailing rotational edge, not between the leading and trailing rotational edges of the blade such that an interior surface of the edge portion faces the main/side plate through the hollow space of the blade along a majority of the hollow space between the leading and trailing rotational edges of the blade. Accordingly, the ‘697 publication fails to disclose or suggest the unique arrangements of independent claims 1-4 as now amended.

The Glucksman patent and the Kim patent are merely relied upon for their disclosures of resin. However, these references do not account for the deficiencies of the ‘697

publication with respect to independent claims 1-4 explained above. Accordingly, even if the Glucksman patent and/or the Kim patent were somehow combined with the device of the ‘697 publication, the arrangements set forth in independent claims 1-4 would not result. Accordingly, withdrawal of the reject of independent claims 1-4 is respectfully requested.

Under U.S. patent law, the mere fact that the prior art can be modified does *not* make the modification obvious, unless an *apparent reason* exists based on evidence in the record or scientific reasoning for one of ordinary skill in the art to make the modification. See, KSR Int'l Co. v. Teleflex Inc., 127 S.Ct. 1727, 1741 (2007). The KSR Court noted that obviousness cannot be proven merely by showing that the elements of a claimed device were known in the prior art; it must be shown that those of ordinary skill in the art would have had some “apparent reason to combine the known elements in the fashion claimed.” Id. at 1741. The current record lacks any apparent reason, suggestion or expectation of success for combining the patents, and then further modifying the hypothetical device created by the hypothetical combination of references to create Applicants’ unique arrangements of independent claims 1-4.

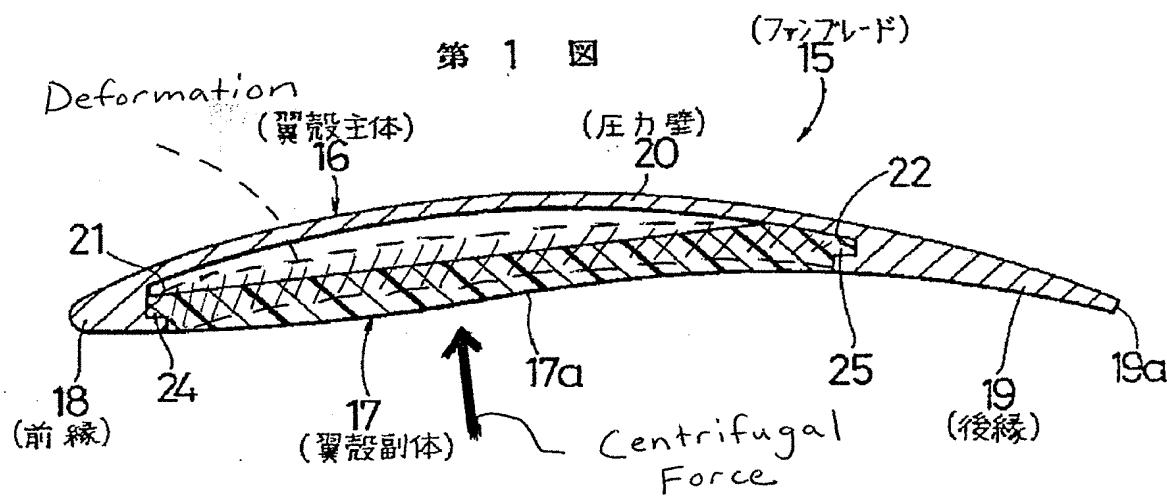
Moreover, Applicants believe that dependent claims 6, 7, 10, 11, 13, 14, 17, 20 and 23-31 are also allowable over the prior art of record in that they depend from independent claim 1, and therefore are allowable for the reasons stated above. Also, dependent claims 6, 7, 10, 11, 13, 14, 17, 20 and 23-31 are further allowable because they include additional limitations, which in combination with the limitations of their respective independent claim 1, 2, 3 or 4, are not disclosed or suggested in the prior art. Accordingly, withdrawal of the rejections of are also respectfully requested.

Additional Arguments regarding Previously Presented Claims

Additionally, Applicants disagree with the Office Action, as explained below.

First, the Office Action’s interpretation that the part near the engagement ditch 21 of the ‘697 publication (see figures 1 and 2) is the blade shape retaining mechanism of claims 1 to 4 appears improper. The blade shape retaining mechanism (the end surface of the edge portion) of claims 1 to 4 is a part preventing the second surface portion from being deformed toward outer peripheral side by centrifugal force.

On the other hand, the engagement ditch 21 of the '697 publication is a part where the sub blade body 17 is set in the main blade body 16. Therefore, the sub blade body 17 moves and is deformed toward the hollow space side by centrifugal force (see annotated Figure 1 of the '697 publication reproduced below with deformation of sub blade body 17 due to centrifugal force illustrated). That is, the engagement ditch 21 of the '697 publication does not have the function to suppress the deformation of the sub blade body by centrifugal force.



Therefore, the Office Action's interpretation that the part near the engagement ditch 21 of the '697 publication is the blade shape retaining mechanism of claims 1 to 4 appears improper.

Second, the Office Action's obviousness assertion that the suction wall 13, the rear wall 14, the main blade body 16 and the sub blade body 17 of the '697 publication are constructed of resin material appears improper.

The '697 publication discloses that the impeller has the main blade body 16 constructed of metal material and the sub blade body 17 constructed of resin material in order to lighten the impeller and to suppress the thermal deformation of the impeller (see from page 10, line 16 to page 11, line 19 of the '697 publication). That is, the '697 publication teaches that the main blade body should be metal and not plastic, and thus, the '697 publication teaches away from constructing the main blade body 16 of resin material as suggested in the Office Action.

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Amendment dated June 23, 2010
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Therefore, the Office Action's obviousness assertion that the suction wall 13, the rear wall 14, the main blade body 16 and the sub blade body 17 of the '697 publication are constructed of resin material appears improper. Accordingly, withdrawal of the rejections are respectfully requested.

Prior Art Citation

In the Office Action, additional prior art references were made of record. Applicants believe that these references do not render the claimed invention obvious.

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In view of the foregoing amendment and comments, Applicants respectfully assert that claims 1-4, 6, 7, 10, 11, 13, 14, 17, 20 and 23-31 are now in condition for allowance. Reexamination and reconsideration of the pending claims are respectfully requested. If there are any questions regarding this Amendment, please feel free to contact the undersigned.

Respectfully submitted,

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Dated: June 23, 2010

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